Naval Air Station Brunswick **Cumberland County** **Brunswick, Maine** **A-268-71-Z-A**	**Departmental** **Findings of Fact and Order** **Air Emission License** **Amendment #5**

After review of the air emissions license amendment application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., Section 344 and Section 590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

1. Naval Air Station Brunswick (NASB) of Bruswick, Maine was issued Air Emission License A-268-71-T-A/R on April 21, 2000 permitting the operation of emission sources associated with their military flight operations facility. The license was subsequently amended on November 6, 2000 (A-268-71-V-A), September 25, 2001 (A-268-71-W-M), December 20, 2002 (A-268-71-X-M), and September 25, 2003 (A-268-71-Y-A).

2. NASB has requested an amendment to their license in order to license new emission units to be installed.

B. Emission Equipment
NASB proposes addition of the following new equipment:

Fuel Burning Equipment

Equipment	**Maximum Capacity (MMBtu/hr)**	**Maximum Firing Rate (scf/hr)**	**Fuel Type, % sulfur**
Bldg 751 Water Heater #1	1.83	1,772	Natural Gas, negligible
Bldg 751 Water Heater #2	1.83	1,772	Natural Gas, negligible
Bldg 751 Make-up Air Unit #1	1.20	1,165	Natural Gas, negligible
Bldg 102 Make-up Air Unit #1	1.50	1,456	Natural Gas, negligible

Electrical Generation Equipment

Equipment	Location	Power Output (kW)	Firing Rate	Fuel Type, % sulfur
Engine #57	Bldg 231	350	4,767 scf/hr	Natural Gas, negligible
Engine #58	Hangar 5	300	22.9 gal/hr	Diesel, 0.05%

NASB also has plans to install a two-stage air filtration system on the exhaust side of the new small arms range building.

C. Application Classification

The modification of a minor source is considered a major modification based on whether or not expected emission increases exceed the "Significant Emission Levels" as given in Maine's Air Regulations. The emission increases are determined by subtracting the current licensed emissions preceding the modification from the maximum future licensed allowed emissions, as follows:

Pollutant	Current License (TPY)	Future License (TPY)	Net Change (TPY)	Sig. Level
PM	21.4	21.5	+0.1	100
PM_{10}	21.4	21.5	+0.1	100
SO_2	88.2	88.2	0.0	100
NO_x	71.9	74.6	+2.7	100
CO	18.8	23.4	+4.6	100
VOC	48.0	48.4	+0.4	50

This modification is determined to be a minor modification and has been processed as such.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in Chapter 100 of the Department regulations. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in Chapter 100 of the Air Regulations. BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

B. Water Heaters and Make-up Air Units

NASB has proposed adding two (2) new water heaters (1.83 MMBtu/hr each) as well as two (2) new make-up air units (1.20 MMBtu/hr and 1.50 MMBtu/hr). All of these units fire natural gas. NASB has not proposed any change to the facility's current fuel limit.

The water heaters and make-up air units to be installed all have maximum heat inputs less than 10 MMBtu/hr and are therefore not subject to the New Source Performance Standards (NSPS) Subpart Dc for steam generating units greater than 10 MMBtu/hr manufactured after June 9, 1989.

A summary of the BACT analysis for the new water heaters and air make-up units is the following:

1. The facility shall not exceed a combined fuel usage of #2 fuel oil and natural gas equivalent to 350,000 MMBtu/year, based on a 12 month rolling total.
2. Additional emissions of SO_2 from these units was determined to be negligible.
3. Chapter 103 regulates PM emission limits, however in this case a BACT analysis for PM determined a more stringent limit of 0.05 lb/MMBtu was appropriate and shall be used. The PM_{10} limits are derived from the PM limits.
4. NO_x, CO, and VOC emission limits are based upon AP-42 data dated 7/98.
5. Visible emissions from the water heaters/make-up air units shall each not exceed 10% opacity on a six (6)-minute block average, except for no more than one (1) six (6) minute block average in a 3-hour period.

C. Engine #57

NASB proposes to install a new 350 kW output natural gas fired emergency generator.

"Emergency" is defined in Chapter 100 and throughout this document as: "… any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology based emission limitation under the license, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error."

A summary of the BACT analysis for Engine #57 is the following:

1. Engine #57 shall be limited to 500 hr/yr of operation based on a 12 month rolling total. Compliance shall be demonstrated by a written monthly log of operating hours.
2. The PM and PM_{10} limits are derived from Chapter 103.
3. SO_2, NO_x, CO, and VOC emission limits are based upon AP-42 data dated 7/00.
4. Visible emissions from the Engine #57 shall not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period.

D. Engine #58

NASB proposes to install a new 300 kW output diesel oil fired emergency generator.

A summary of the BACT analysis for Engine #58:

1. The total fuel use for the facility's diesel generators shall not exceed 30,000 gal/year of diesel fuel, based on a 12 month rolling total, with a maximum sulfur content not to exceed 0.05% by weight.
2. Chapter 106 regulates fuel sulfur content, however in this case a BACT analysis for SO_2 determined a more stringent limit of 0.05% was appropriate and shall be used.
3. The PM and PM_{10} limits are derived from Chapter 103.
4. NO_x, CO, and VOC emission limits are based upon AP-42 data dated 10/96.
5. Visible emissions from the facility's generators shall not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period.

E. Small Arms Range

NASB plans to install a two-stage HEPA filtration system on the exhaust side of the Small Arms Range building. This system will consist of a pre-filter and a 99.97% efficient HEPA filter. This equipment has been determined to be an insignificant activity and has been processed as such.

F. Annual Emission Restrictions
NASB shall be restricted to the following annual emissions, based on a 12 month rolling total:

Total Allowable Annual Emission for the Facility
(used to calculate the annual license fee)

	PM	**PM_{10}**	**SO_2**	**NO_x**	**CO**	**VOC**
Boilers	21.0	21.0	88.1	61.3	14.3	0.9
Diesel Generators	0.3	0.3	0.1	9.1	2.0	0.7
Hangar 6 Engine #53	0.1	0.1	--	1.5	2.5	0.2
Engine #57	0.1	0.1	--	2.7	4.6	0.4
Process/Fugitive	--	--	--	--	--	46.8
Total TPY	**21.5**	**21.5**	**88.2**	**74.6**	**23.4**	**48.4**

Note: Annual emissions of CO and VOC are based on emissions from firing natural gas. Emissions for all other pollutants are based on oil firing.

ORDER

Based on the above Findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-268-71-Z-A subject to the conditions found in Air Emission License A-268-71-T-A/R, in amendments A-268-71-V-A, A-268-71-W-M, A-268-71-X-M, A-268-71-Y-A and in the following conditions:

Note: Conditions regarding facility fuel usage are contained in Air Emission License A-268-71-Y-A.

The following are new Conditions:

(35) **New Water Heaters and Make-up Air Units**

A. Fuel use for the new water heaters and make-up air units shall be accounted for in determining compliance with Condition (16)(A) of Air Emission License A-268-71-Y-A. [MEDEP Chapter 115, BPT]
B. Emissions shall not exceed the following [MEDEP Chapter 115, BPT]:

Emission Unit	PM (lb/hr)	PM_{10} (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Bldg 751 Water Heater #1	0.09	0.09	0.18	0.15	0.01
Bldg 751 Water Heater #2	0.09	0.09	0.18	0.15	0.01
Bldg 751 Make-up Air #1	0.06	0.06	0.12	0.10	0.01
Bldg 102 Make-up Air #1	0.08	0.08	0.15	0.12	0.01

C. Visible emissions from these water heaters and make-up air units shall not exceed 10% opacity on a six (6) minute block average, except for no more than one (1) six (6) minute block averages in a continuous 3-hour period. [MEDEP Chapter 101]

(36) **Engine #57**

A. NASB shall limit Engine #57 to 500 hr/yr of operation (based on a 12 month rolling total). An hour meter shall be maintained and operated on the generator. [MEDEP Chapter 115, BPT]
B. A written log documenting the hours of operation for Engine #57 shall be kept on a monthly basis. [MEDEP Chapter 115, BPT]
C. Engine #57 shall fire only natural gas. [MEDEP Chapter 115, BPT]
D. Emissions shall not exceed the following:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Engine #57	PM	0.05	MEDEP Chapter 115, BPT

E. Emissions shall not exceed the following [MEDEP Chapter 115, BPT]:

Emission Unit	PM (lb/hr)	PM_{10} (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Engine #57	0.25	0.25	10.83	18.23	1.72
Generator #2					

F. Visible emissions from Engine #57 shall not exceed 20% opacity on a 6-minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period. [MEDEP Chapter 101]

(37) **Engine #58**

A. Emissions shall not exceed the following [MEDEP Chapter 115, BPT]:

Emission Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Engine #58	0.35	0.35	0.15	12.92	2.78	1.03

B. Visible emissions from Engine #58 shall not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period. [MEDEP Chapter 101]

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF 2004.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:_____
DAWN R. GALLAGHER, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

The term of this amendment shall be concurrent with the term of Air Emission License A-268-71-T-A/R.

Date of initial receipt of application: 3/16/04
Date of application acceptance: 3/18/04

Date filed with the Board of Environmental Protection: _____

This Order prepared by Lynn Ross, Bureau of Air Quality.